

## ROAD SAFETY ISSUES IN LAOS BASED ON ACCIDENT DATA FROM 2010 TO 2020

Shibaura Institute of Technology  
Shibaura Institute of Technology

Master student  
Associate Professor

Student Member  
Regular Member

Amphayvanh Keopadith  
Michael Henry

### 1. Introduction

The land transport in Laos has been rapidly changed for the last decade, with exponential growth in routes that serve passenger and goods. As a result of this growth there now exists many connections between central locations to localities as well as international trunk roads that connect Laos at a regional level. Accordingly, the number of vehicle registration and traffic stream have increased correspondingly, including vehicles belonging to foreign tourist and international goods transportation services. This particularly has been the trend in the largest cities such as Vientiane Capital, Savanaket, Champasack, Luangprabang and Vientiane province which are the strategic points of the country and are of great economic importance. Consequently, issue such as increased traffic congestion and accidents have been reported with the major cities and localities as well. Therefore, the need for the Laos government to intervene to try and resolve the issues related to road safety and congestion.

This paper summarizes the statistics of road accidents, and mortality per 100,000 people in five selected provinces. At the same time, it compares the result of the proportion of population who own vehicle and those who have registered for driving license in 2020, to try and determine the relationship between the two factors. This aims to potentially provide helpful information for road safety enhancement in future.

### 2. Road accident data and source

#### 2.1. Data collection

The existing traffic accident data was collected from road crashes by local police officer across the country since 2010 to 2020. The data was collected by traffic police teams, who were the first to arrive at the scene of accident. Using a road accident report form as tool, they record accident specific detail such as vehicle type, location and probable cause among other details. This accident data was then shared with Department of Transport under Ministry of Public Works and Transport each month to acknowledge and use those accident data in road safety work.

Most of data in the database presented severe and moderate cases that the parties involved required police intervention for resolution or additional evidence for a court case. Minor accidents were often not reported to due to role of insurance companies in resolving any damages whether to the vehicle or to human life. Thus, the traffic police lacked some information of light accident in their reporting.

#### 2.2. Data types.

The accident data was illustrated in this paper such as number of traffic accident, fatality, including percentage of driving license and vehicle registration rate, that was

taken from the largest city such as Vientiane Capital, Savanaket, Champasack, Luangprabang and Vientiane province which were selected provinces due to there was many cases of traffic accident occurred during the period of ten years from 2010-2020.

### 3. Results and discussion

#### 3.1. Road accident

Laos is a country which has suffered extremely from the road accident problem so far. According to the graph in Figure 1, it shows the number of road accident across country, there are total 18 provinces, included Vientiane capital. The accident data of each province were completely different, some provinces have accumulated an accidental rate was high, such Vientiane capital was over 16,000 cases in last ten years, while the accident data of other small provinces nationwide was less. For example, Houaphan province was only 1,049 cases in the same period.

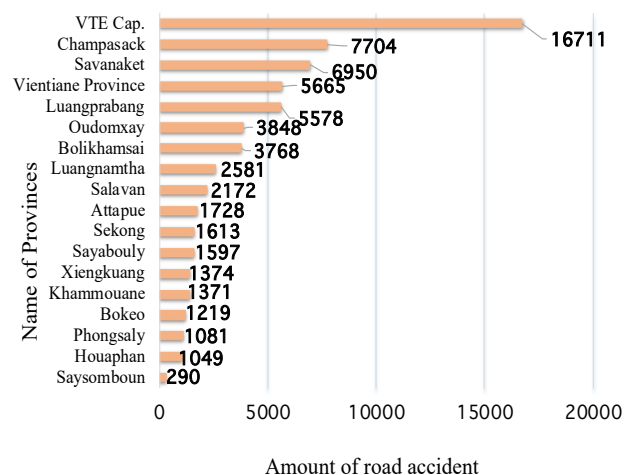


Figure 1 Road accident in Last decade across the country

This shows and approximately fifteen times higher rate between the larger and smaller provinces which is attributed to their varying characteristic in term of population and economic difference. Higher accident rates were recorded in the five largest provinces such as Vientiane capital of country, Champasack and Savannaket provinces which are economic and logistic zones that are the hub for sub-region freight and transit service due to their strategic locations, that easily accesses the Laos-Vietnam border and Laos-Thai border, Luangprabang and Vientiane province which are tourist sites due a world heritage town and beautiful scenery. The high accident rates in the largest towns are significantly higher in magnitude due to the large population and presence of international borders where there is a lot of passage of goods truck-trailer and passenger's vehicle across the borders frequently.

**Keyword:** Road accident, injury, fatality, driving license, vehicle registration, road safety, proportion of population,  
**Address:** Toyosu 3-75, Koto-ku, Tokyo, Japan 135-8548. Tel: 03-5859-8363 (ext. 8363)

### 3.2 Fatality rate

The mortality data from road crashes was varied in the large provinces when compared to the population within province. It was found that there was much higher rate of people who lost their lives in road accident each year. Refer to the line graph in Figure 2, it revealed the highest rate of fatality was recorded in 2016 at 30 per 100,000 population in Vientiane capital, while other provinces were often under 20 in the same year. According to Figure 2, points out that death rate in Savanaket and Luangprabang was similar between 10 to 14 for several years, except in 2019, Luangprabang was significantly increased over 20. On the contrary, both Savanaket in 2011 and Vientiane province in 2012 had registered a number of fatalities of 9 per 100,000 people which was the lowest number in history of ten years among the five provinces.

However, in general statistic of fatality rate was still high in this period of time. In particular, Vientiane capital which has never had under 20 fatalities since 2010. This data was not plus the death of patients who was treated in hospital from accident.

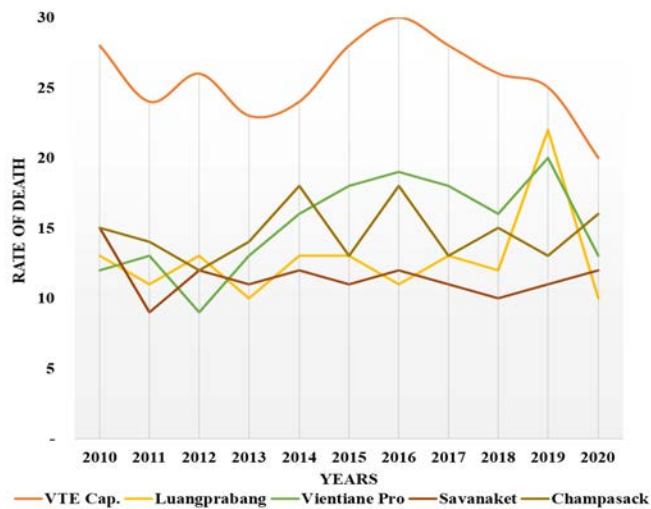


Figure 2 Fatality per 100,000 population.

### 3.3 The number of driving license, vehicle registration and population by selected provinces in 2020.

Proportion of driving license and vehicle registration are very important for road safety sustainability. The driving license rate is related to driver behavior and ability of driving, while percentage of number of vehicles shows the density of vehicle on road and types of transport within specific community. Therefore, both data is significant to current road accident and potential incident in the future, that is an important indicator for strategy of road safety protection in next generation.

In recent year, the percentage of the population that have a vehicle has considerably risen in a wider range of selected provinces (Figure 3), for example, Vientiane capital having the largest proportion of people who own vehicles at rate of 106% of population. The second largest percentage of population having vehicles was Luangprabang with around 80% of habitant. Followed by Vientiane province, the percentile of people has occupied

the vehicle was relatively high by 42%. At the same time, the rate of population in Champasack and Savannakhet which has motor vehicle were similarly low by 13% and 12% respectively, it was clear that, the lowest rate of the population who having vehicle was recorded in Savannakhet province.

Vientiane capital and Luangprabang which has high rate of vehicle in selected provinces, but the percentage of population has driving license was remarkable less by 10% and 8% respectively and the largest percentage of people who having driving license was Vientiane province about 13% of population where the proportion of people have vehicle was moderate level.

The overall trend of proportion of population that have a driving license and vehicle varied widely in all provinces, especially in Vientiane capital, where the percentage of population that own a vehicle was over of existing habitant, and compared to driving license rate was approximately high at 10.6 times.

Also important to note, there is no information of vehicle's data that had registered in different province and was used in others province without transfer registration document from previously registered province. Thus, those existing data might be slightly deviated or inaccurate.

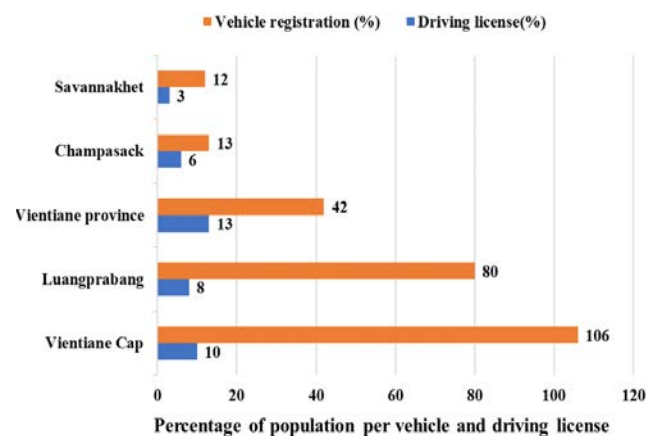


Figure 3 Number of driving license, registered vehicle, and population by selected provinces

## 4. Conclusion.

There was no doubt that the number of road accident and death toll was higher in the largest city over the previous decade, and one of the causes of the road accident problem that caused by driver error, mostly those who have no driving license.

In term of resolution, the involved institution therefore has to increase effort for law enforcement and dissemination of traffic regulation to reduce the number of illegal drivers and road accident in the local community.

## Acknowledgement

This research was supported by a scholarship for road asset management from the Japan International Cooperation Agency.